

REMARKS

Reconsideration and allowance of this application are respectfully requested in view of the above amendments and the following remarks.

The Office Action makes of record the requirement for restriction between claims 1-5 and claims 6 and 7 and requires that the election of claims 6 and 7 be affirmed. This is to affirm the election of claims 6 and 7.

Objection was made to claim 6 due a translation error in line 15. The above amendments to claim 6 overcome this.

Claims 6 and 7 were rejected under 35 U.S.C. §112, second paragraph, due to purported insufficiencies in antecedent basis for terms in each of the claims. The above amendments overcome this.

Claims 6 and 7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Riedel, United States Patent No. 5,748,615 in view of McDonald, United States Patent No. 6,442,166. This rejection is traversed, and reconsideration and withdrawal of it are requested. Applicants' invention, as described by the claims, is neither shown nor suggested by the reference, whether the reference be considered one at a time or in combination.

McDonald is relied upon in the Office Action as disclosing a network including a clock to calculate timing when data is transmitted and when data is received in order to determine the lateness of the head-of-the line cell for each connection. Riedel is thus the main reference relied upon in the rejection.

Claims 6 and 7 relate to the dynamic band variation unit depicted in Figure 2 of the drawings. In that dynamic band variation unit, data from terminal device 30A is applied to buffer 11. Delay quantity measuring means 14 determines the line delay time of dedicated line 21 and public lines 22-24,

and data allocation means 15 allocates the data within buffer 11 between dedicated line buffer 12 and circuit line buffer 13. The data is allocated to dedicated line buffer 12 until the data in buffer 12 is in amount requiring transmission in the line delay time of dedicated line 21. Subsequent data is allocated to circuit line buffer 13 for transmission on one or more of the public lines 22-24. As data from dedicated line buffer 12 is transmitted, new data is allocated to that buffer, as depicted in Figures 4 and 5 of the drawings. Thus the data from a single data terminal device may be allocated to two or more lines.

Riedel shows a data handling device which controls application of real time data and non-real time data to a single line A1. The real time data and the non-real time data are applied to control means STE, shown in Figure 2. The real time data is stored in waiting list Q1, while the non-real time data is stored in waiting list Q2. Any real time data in waiting list Q1 passes through multiplexer MUX and memory control MMU to central cell memory CM and thus to output line A1. When there is no real time data in waiting list Q1, non-real time data from waiting list Q2 can pass through the multiplexer and memory control to the central cell memory and output line A1. Thus, Riedel relates to controlling the timing of the application of real time data and non-real time data to a single output line A1, while the present invention relates to allocating data between a plurality of output lines.

Riedel's technology relates to a device for controlling timing of transmitting real time and non-real time data on a single output line A1, with control by a control means STE. In comparison, the present invention provides a data communication system using a dynamic band variation unit

where the number of lines used for communication may be increased or decreased, and the data may be allocated to various ones of the plurality of lines.

The claims bring out the distinctions over Riedel. Thus, independent claim 6, both before and after the present amendment, recited means for controlling the switching of a plurality of lines, as well as means for allocating data from a data terminal device to the plurality of lines, as well as reciting that the line delay times of the plurality of lines are measured, and the data is transferred or transmitted in units with timing determined for each of the plurality of lines. Such a line switching unit is neither shown nor suggested by the references.

To assure Applicants' the degree of protection to which their invention entitles them, claims 8-10 have been added. Independent claim 8 likewise includes means for allocating received data to a plurality of output lines, means for storing data allocated to the plurality of output lines, means for measuring the line delay times of the plurality of output lines, and means responsive to the measured line delay times for controlling the allocation means to allocate the received data to the plurality of output lines based on the measured line delay times. Dependent claim 9 likewise includes these limitations, as well as reciting that the responsive means allocates to a first one of the output lines an amount of the received data corresponding to the measured line delay time of that first one of the output lines, and allocates subsequently received data to another of the output lines. Independent claim 10 goes into more detail and includes a first line buffer for storing data allocated to a first one of the plurality of output lines and a second line buffer

for storing data allocated to the others of the plurality of output lines, as well as means for measuring the line delay times of the plurality of the output lines and the means responsive to the measured line delay times for controlling the allocation means to provide the received data to the first line buffer up to a time corresponding to its measured line delay time and to provide subsequently received data to the second line buffer. Again, the subject matter of these claims is neither shown nor suggested by the references, whether the references be considered together or separately.

The Notice of Draftspersons Patent Drawing Review, objecting to the character of the lines, numbers, and letters in Figures 1 and 5 is noted. Submitted with this amendment is a Letter Submitting Corrected Formal Drawings, thereby overcoming this rejection.

The specification and Abstract have been amended to assure grammatical and idiomatic English and improved form under United States practice. In view of the extent of the amendments to the specification, a Substitute Specification is submitted herewith, together with a copy of the original specification having the amendments highlighted. The undersigned attorney affirms that the Substitute Specification contains no new matter.

In view of the above amendments and remarks, together with the submission of new formal drawings, it is respectfully urged that all of the grounds for objection and rejection have been overcome, that the claims are allowable, and that the application is in condition for allowance. Such action would be appreciated.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 648.37184X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

6. (Amended) A line switching unit comprising:

a-means for controlling the switching of a plurality of lines;

a-means for measuring a-line delay ~~time-times~~ of said the plurality of lines;

a-means for storing data transmitted from a data terminal device to said line switching unit;

a-means for allocating said-the data from said-the data terminal device to said-the plurality of lines; and

a-means for separately controlling a clock signal for receiving data from said-the data terminal device and a clock signal for transmitting data to said data-terminal-device the plurality of lines;

wherein said-the line delay ~~time-times~~ of said-the plurality of lines are measured, and the data corresponding to said line delay time is stored to said unit, said data being transferred to an opposing data terminal device is transmitted to the plurality of lines in units through said plurality of lines by a with timing determined for each of said-the plurality of lines, thereby guaranteeing the data being communicated.

7. (Amended) A line switching unit according to claim 6, wherein said the clock signal for transmitting the data to said data terminal device the plurality of lines is controlled to correspond to the line speed when receiving data from said line, thereby guaranteeing said data being communicated to said-the data terminal device.